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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,261	03/09/2005	Yong-Ki Park	930086-2008	2904

7590 08/08/2007
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EXAMINER

HAILEY, PATRICIA L

ART UNIT	PAPER NUMBER
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1755

MAIL DATE	DELIVERY MODE
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08/08/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/527,261	Applicant(s) PARK ET AL.	
	Examiner Patricia L. Hailey	Art Unit 1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 14-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Applicants' remarks and amendments, filed on May 21, 2007, have been carefully considered. Claim 3 has been canceled, and new claims 14-19 have been added.

Claims 1, 2, and 5-19 are now pending in this application.

Support for new claims 14-19 can be found, inter alia, in claims 3 and 5 as originally filed, and in the Specification at page 17, lines 22-26.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Applicants' Priority Document was filed on March 9, 2005.

Claim Objection

The following Claim Objection is being made in view of Applicants' amendments, and in view of the Examiner's reconsideration of the instant claims.

Claim Objections

2. ***Claims 1, 2, and 10-19 are objected to because of the following informalities:***

In the claims, the formulae $(\text{NH}_3)_2\text{HPO}_4$ and $(\text{NH}_3)\text{H}_2\text{PO}_4$ are formulaically incorrect. Ammonia is represented by the formula NH_3 and therefore has no positive

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valence to balance the negative valence of HPO_4 (-2) or H_2PO_4 (-1). It appears that the formulae should read: $(\text{NH}_4)_2\text{HPO}_4$ and $(\text{NH}_4)\text{H}_2\text{PO}_4$

Appropriate correction is required.

Maintained Rejection

3. The following rejections of record have been maintained; the text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Although the Maintained Rejection includes newly added claims 14-19, the subject matter of these new claims is encompassed by the previously rejected claims.

Claim Rejections - 35 USC § 102

1. ***Claims 1, 2, and 10-13 stand, and new claims 14, 15, and 19, are, rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al. (U. S. Patent No. 4,791,084).***

Sato et al. disclose a catalyst comprising alumina particles on which a phosphorus component has been fixed. See col. 3, lines 35-38 of Sato et al. (considered to read upon **claim 11**; as well as the limitation "wherein a surface of said aluminum oxide is loaded with phosphorous" in **claim 1**).

The catalyst is prepared by contacting a previously prepared alumina or alumina hydrate with a phosphoric ion-containing aqueous solution, drying and thereafter calcining the alumina. Exemplary phosphoric ion-containing aqueous solutions include

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aqueous solutions of phosphoric acid, ammonium hydrogen phosphate $[(\text{NH}_4)_2\text{HPO}_4]$, and ammonium phosphate. See col. 3, lines 56-61 of Sato et al. (considered to read upon **claims 2, 12-15, and 19**), as well as col. 4, lines 21-26.

The amount of phosphorus introduced in the alumina is preferably in a range corresponding to a P/Al atomic ratio of 0.01 to 0.20 (Al/P of 100 to 5; considered to read upon that respectively recited in **claims 1 and 10**).

Example 1 of Sato et al. depicts an exemplary embodiment in which an aluminum hydroxide (considered to read upon **claim 13**) is calcined, and orthophosphoric acid is subsequently added thereto to obtain phosphorus-containing alumina particles having a P/Al atomic ratio of 0.07 (Al/P 14.28). See col. 5, lines 41-55 of Sato et al.

In view of these teachings, Sato et al. anticipate claims 1, 2, 10-15, and 19.

Claim Rejections - 35 USC § 103

2. Claims 4-9 stand, and new claims 16-18 are, rejected under 35 U.S.C. 103(a) as being unpatentable over Rossin (U. S. Patent No. 6,509,511) in view of Sato et al. (U. S. Patent No. 4,791,084).

(In the previous Office Action, claim 1 was included in this rejection because claims 4-9 depended directly or indirectly from claim 1.)

Rossin teaches a process for the decomposition of perfluoroalkanes via contact thereof with a catalyst comprising alumina. The catalyst preferably comprises a stabilizing agent (if present, in amounts ranging from 1 to 100 parts by weight per 100

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parts alumina, see col. 6, lines 40-43 of Rossin), examples of which include phosphorus. See the Abstract of Rossin, as well as col. 3, lines 45-56 and col. 6, lines 14-39, the latter disclosing pseudoboehmite and aluminum hydroxide as exemplary sources of alumina.

The process takes place in the presence of water (col. 4, lines 30-46 of Rossin) and at elevated temperatures ranging from at least 400°C, and, especially preferred, temperatures of at least 600°C. See col. 4, line 66 to col. 5, line 6 of Rossin, as well as the Examples, which additionally disclose exemplary gas streams comprising the perfluoroalkanes, and, more specifically, water, in amounts considered within the limitations recited in **claims 6 and 7**.

Exemplary perfluoroalkanes suitable for decomposition include trifluoromethane (CHF_3) and hexafluoroethane (C_3F_6). See col. 5, lines 44-52 of Rossin, as well as Examples II and IV, which disclose C_2F_6 and CF_4 as additional perfluoroalkanes.

Although Rossin discloses a catalyst comprising alumina, and a stabilizing agent that can be phosphorus, this reference does not specifically disclose the molar ratio recited in claim 1.

Sato et al. is relied upon for its teachings in the above 102(b) rejection. The phosphorus-containing alumina disclosed therein is considered comparable to the catalyst disclosed in Rossin.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Rossin by substituting the

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catalyst disclosed therein with the catalyst disclosed in Sato et al., and thereby obtain Applicants' claimed invention.

Response to Arguments

Although Applicants' have amended the claims to "include specific combinations of aluminum oxide and phosphorous sources..." Sato et al., as discussed above, still teaches some of the phosphorus sources recited in the instant claims (col. 3, lines 56-59), as well as an Al/P ratio that overlaps that respectively claimed. Further, the overlap in ratio is not considered "broad", as both the prior art and the instant claims have a common endpoint of 100.

In response to Applicants' arguments that the claimed "catalyst compounds require that they be useful for the hydrolytic decomposition of exhausted perfluoro-compounds by using water", it is the Examiner's position that Applicants' claims in their present form are merely directed to an "aluminum oxide catalyst"; the limitation "for the hydrolytic decomposition of exhausted perfluoro-compounds" is considered a statement of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Regarding Applicants' arguments that the Rossin reference "was used in the previous office action", it is respectfully submitted that the employment of Rossin with a previously cited reference does not disqualify Rossin from being cited against

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Applicants' claims. The teachings of Rossin are considered to continue to read upon Applicants' claims. Despite the teachings of Sato et al. regarding the catalytic cracking of hydrocarbons, Sato et al. is relied upon for its teachings regarding the catalyst disclosed therein.

For these reasons, Applicants' arguments are not persuasive, and the rejections of record are maintained.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

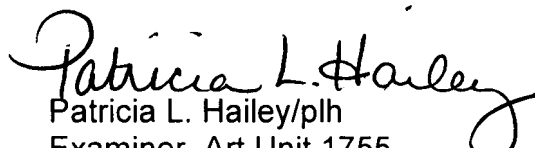
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (571) 272-1369. The examiner can normally be reached on Mondays-Fridays, from 7:00 a.m. to 3:30 p.m.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 1700 Receptionist, whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Patricia L. Hailey/plh
Examiner, Art Unit 1755
July 27, 2007


J. A. LORENZO
SUPERVISORY PATENT EXAMINER